

BEFORE THE

## Federal Communications Commission

WASHINGTON, D.C.

In the Matter of )

Preparation for International )  
Telecommunication Union World )  
Radiocommunication Conferences )

IC Docket No. 94-31

REPLY COMMENTS OF  
AMERICAN MOBILE SATELLITE CORPORATION

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

American Mobile Satellite Corporation ("AMSC") hereby submits its reply to the comments on the Notice of Inquiry ("NOI") in the above-referenced proceeding. AMSC continues to urge the Commission to help make allocations for Mobile Satellite Service ("MSS") the top priority for the 1995 World Radiocommunication Conference ("WRC-95").

In its comments, AMSC urged the Commission to adopt the following proposals either to add more MSS spectrum or to make existing MSS allocations more useful:

1525-1544/1626.5-1645.5 MHz 1545-1559/1646.5-1660.5 MHz	Change to generic MSS; clarify that Resolution 46 does not apply
1610-1626.5/2483.5-2500 MHz	Modify power limits in RR Articles 27 & 28 to reflect forthcoming ITU-R recommendations
2110-2120 MHz	New MSS uplink allocation; modify power limits in RR Articles 27 & 28 to reflect forthcoming ITU-R recommendations
1990-2025/2165-2200 MHz	New MSS uplink allocation at 2010-2025; modify power limits in RR Articles 27 & 28 to reflect forthcoming ITU-R recommendations
1930-1970/2120-2160 MHz	Change MSS secondary downlink allocation at 2120-2130 MHz to primary MSS uplink; upgrade secondary MSS allocation at 1930-1970 MHz and 2130-2160 MHz to primary; modify power limits in RR Articles 27 & 28 to reflect forthcoming ITU-R recommendations
1492-1525 MHz	Make available for U.S. domestic use; modify power limits in RR Articles 27 & 28 to reflect forthcoming ITU-R recommendations

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2390-2420 MHz	Possible new MSS downlink; modify power limits in RR Articles 27 & 28 to reflect forthcoming ITU-R recommendations
2310-2360 MHz (DARS)	Clarify that Resolution 528 does not apply

AMSC also made a number of recommendations regarding the process of preparing for future conferences.

Several parties filed comments which relate to AMSC's concerns about specific frequencies. Those comments will be addressed below. As an initial matter, however, three broader spectrum-related issues that were raised in the comments merit reply.

Global-system-only allocations. The first such issue is raised by the proposal of Motorola Satellite Communications, Inc. and Iridium, Inc. (collectively "MSCI") that the conference adopt allocations that restrict access to certain spectrum to global systems only. AMSC strongly opposes such a proposal as an unnecessary and inappropriate restriction on national sovereignty. Countries should and will want the flexibility to use MSS spectrum for whatever kind of MSS system they choose, whether the system is global, regional, sub-regional or domestic.<sup>1/</sup>

Artificial restrictions on access to spectrum promote inefficient use of that spectrum. Given the severe shortage of

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<sup>1/</sup> Any attempt to create a global-system-only restriction also raises difficult definitional issues that have implications for national sovereignty. For instance, it would be necessary to clarify what level of service to what areas of the world during what time period qualifies a system as "global" and to what extent cooperating regional systems offering an integrated service would be eligible to use the restricted bands.

MSS spectrum, if there is spectrum available, allocated to MSS, all systems that can use the spectrum efficiently should be able to gain access to that spectrum.<sup>2/</sup>

AMSC recognizes that non-geostationary orbit ("non-GSO") satellite systems, such as that of MSC-I, have had difficulty in gaining access to sufficient spectrum world-wide, but that difficulty is mostly a function of the overall shortage of MSS spectrum and the relative difficulty of coordinating many of the non-GSO systems. Unfortunately for the non-GSO systems, however, proposing global-system-only allocations is not going to solve their problem. Instead, it is only likely to increase the concern and defensiveness of those administrations that already are wary of the issues raised by the non-GSO system proposals. Heightening the concern of these administrations in turn will make it more difficult to improve and add new MSS allocations generally.

Implementation dates. The second general issue concerns the possible advancement of the date for systems outside the U.S.

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2/ An exception to this principle exists in those cases in which the only politically-acceptable way to obtain international consensus for a new allocation is by restricting access in some manner, such as by limiting the allocation to one or more regions or by limiting use to systems that are locally authorized, so that an administration can be confident that its existing or planned facilities will not be adversely affected by the operation of a new system in a neighboring country. This latter approach is essentially what occurred in the allocation of the 2.5/2.6 GHz band to MSS for use by domestic and sub-regional systems only. See RR Nos. 753 and 766. In that case, many of the administrations attending WARC-92 were unwilling to agree to any new MSS allocation in these bands unless they were assured that new systems using the frequencies near their boundaries would operate only with their consent.

using the 2 GHz MSS allocation made at WARC-92. Several parties support such an advancement of the date. Two other parties oppose any earlier access to the bands. Maximum Service Television, Inc. and other representatives of television broadcasters ("MSTV") urges the Commission to conclude its domestic allocation process before taking a position internationally. MSCl asks the Commission to hold back development of the 2 GHz bands for MSS until the standards-setting process for Future Public Land Mobile Telephone Service ("FPLMTS") is further advanced. Indeed, MSCl goes so far as to argue that the implementation date for the U.S. should be changed from 1996 to 2005 for this same reason.

AMSC is not opposed to an advance in the date for global implementation of MSS systems in the 2 GHz bands. Again, with the present severe shortage of spectrum for MSS, it is in the interests of all who seek to see the industry move forward to have as much useable spectrum made available as soon as possible. MSCl's concern apparently overlooks the fact that the development of Personal Communications Services in the adjacent bands in the U.S. is already underway without waiting for the conclusion of any formal process of setting FPLMTS standards. Moreover, any satellite system that is developed in the bands is likely to be capable of being relatively easily modified to adapt to whatever equipment standards are implemented for terrestrial systems. It is more important in fostering compatibility between satellite and terrestrial systems for the systems to be in adjacent bands than for the systems to be designed at the same time. In

addition, AMSC strongly opposes MSCl's suggestion that there be any postponement of the U.S. implementation date established at WARC-92 by Footnote 746C. Any such effort would be completely contrary to U.S. policy of promoting the expeditious development of MSS systems to serve the United States.

Resolution 46. The third general issue concerns the comments that several of the non-GSO system proponents raised concerning possible changes to Resolution 46, which sets forth interim procedures for coordinating non-GSO systems with other systems. AMSC does not have any comment on these proposals other than to emphasize that the Commission should keep in place the present U.S. policy that Resolution 46 not have any impact on the present coordination of the MSS spectrum at 1525-1559/1626.5-1660.5 MHz. This policy is reflected in Reservation No. 79, taken by the United States at WARC-92.

The Upper and Lower L-band MSS Spectrum  
1525-1544/1626.5-1645.5 MHz  
1545-1559/1646.5-1660.5 MHz

Aeronautical Radio, Inc. ("Arinc") is the only entity that opposes AMSC's proposal that the United States continue to support a generic MSS allocation in these bands. Arinc reiterates its long-standing opposition to modifying the current Aeronautical Mobile Satellite (R) Service allocation in the upper L-band. Arinc's concerns, however, continue to be based on speculation that generic systems will not be capable of providing priority and preemptive access to aviation safety communications. Such concerns remain unsubstantiated and are directly contrary to

U.S. policy determinations. As the Commission has recognized, the most efficient way to use these bands is by freeing them from artificial service limitations that are better handled by establishing requirements for certain services to be given priority and preemptive access. The current international frequency coordination of these bands has served to highlight the inefficiencies that can be created by unnecessary service-specific allocations. If the principle of generic allocations is accepted internationally at WRC-95 for these bands, it would encourage Inmarsat, which uses much of the spectrum in these bands, to begin operating in a more efficient manner.<sup>3/</sup> This added efficiency, in turn, would make more spectrum available for all the systems that are attempting to coordinate this spectrum and, ultimately, would result in more and better service in the United States and elsewhere.

The comments submitted by MSC-I recommend that the U.S. support the elimination of the requirement for provision of GMDSS in the 1626.6-1631.5 MHz band. Without taking any position on MSC-I's specific proposal, AMSC is concerned that it reflects an expectation on MSC-I's part that this portion of the lower L-band may be available for its proposed MSS systems. These frequencies are already the subject of the ongoing international frequency

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<sup>3/</sup> Efficiency is gained in several ways. One gain comes from co-channel sharing of links with different characteristics. For example, it may be possible for two systems to operate co-channel if one provides maritime communications and the other provides land mobile service. Another kind of efficiency gain comes from permitting individual systems to allocate their channels in real time on the basis of actual demand.

coordination of the upper and lower L-bands generally and that Mexico and Inmarsat have built or are building their systems in anticipation of operating in these frequencies.

The Former RDSS Bands  
1610-1626.5/2483.5-2500 MHz

Several parties propose specific changes to the power limits in the 2483.5-2500 MHz band to permit greater sharing between satellite and terrestrial systems.<sup>4/</sup> AMSC believes that it will be appropriate to propose changes to the power limits that will promote greater sharing, but that it is premature for the U.S. to adopt any specific proposal at this time, prior to the completion of the ITU-R study process. There is evidence at this time that the specific proposals put forward by the parties will not protect terrestrial services. For instance, the proposed change put forward by LQP is based on the assumption that only one non-geostationary satellite system operates in the band, an assumption which is directly contrary to the approach the Commission has proposed to take.

1970-2025 MHz

MSTV filed comments opposing the use of this band by MSS. MSTV contends that the band is part of a larger band that is heavily used in major markets for broadcast auxiliary operations, that many of these operations are mobile and therefore cannot relocate to higher frequencies, and that the shift to higher

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<sup>4/</sup> See Comments of Constellation Communications, Inc.; Ellipsat Corporation; Loral\Qualcomm Partnership, L.P.; and TRW Inc.

definition television may create additional need for spectrum for broadcast auxiliary operations.

AMSC recognizes that use of the band for MSS will involve some dislocation to some broadcast services, particularly in major markets. Nonetheless, it is fair for broadcasters to share the burden of attempting to find new spectrum for emerging technologies. It is important to establish compatibility between terrestrial and satellite systems providing new Personal Communications Services, for which the 1990-2025 MHz band is invaluable. In addition, the Commission has committed to try to reaccommodate broadcast auxiliary in other bands. Somewhat contrary to MSTV's claims, such reaccommodation does not need to be limited to lower frequency bands where mobile communications is possible. Much of the electronic newsgathering functions performed by broadcast auxiliary facilities in this band are most accurately characterized as "transportable" rather than "mobile." Thus, they should be able to operate well at higher frequencies.<sup>5/</sup>

1675-1710 MHz  
1492-1525 MHz  
1559-1564 MHz

MSCI was the only party to comment on the use of the 1675-1710 MHz band for MSS, proposing to broaden the Region 2 MSS

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<sup>5/</sup> AMSC opposes MSCI's proposal to delete the MSS allocation at 1970-1990 MHz. Although the spectrum may be used for terrestrial services in the U.S., its continued allocation internationally for MSS may permit its use outside the U.S. by MSS systems that, as a result, would have less need for frequencies allocated to MSS and available for use in the United States.



allocation to one that is worldwide. AMSC is not opposed to a broadening of the allocation and supports further study of this issue to more fully consider the potential for sharing. As a result of sharing problems with incumbent systems, this band may be well suited for use by MSS systems only in the United States and elsewhere in Region 2 and there may be substantial opposition to broadening the allocation worldwide.

Similarly, it is appropriate to further study the potential for a broadening of the MSS allocation at 1492-1525 MHz, beyond the current limited Region 2 allocation. AMSC has shown that this spectrum can be shared with existing terrestrial users in the United States. With its adjacency to the current MSS allocation above 1525 MHz, it is extremely valuable spectrum. AMSC also is exploring the possibility that the 1559-1564 MHz band may be useful as an MSS downlink band, perhaps as an alternative to 1492-1525 MHz.

#### 2390-2420 MHz

The Amateur Radio Relay League submitted comments that oppose an MSS allocation in this band. AMSC appreciates the concerns expressed in those comments. At the same time, however, there are ongoing efforts in IWG-3 that will be examining more closely the potential for sharing between amateur services and MSS in this band. Those study efforts should be concluded sufficiently in advance of WRC-95 to permit resolution of this issue at that time.

2300-2310 MHz

Both MSC1 and LQP suggest that 2300-2310 MHz may be useful as a new MSS allocation. AMSC is encouraged by its own review of the utility of this band, although there is some uncertainty as whether the band is optimally used as an uplink or a downlink and with which band it is best paired.

Feeder link spectrum

Several of the comments that were filed highlight the difficulties that non-GSO MSS systems are having in identifying viable feeder link spectrum. These comments focused on new feeder link allocations and on changes to existing Fixed Satellite Service allocations to improve opportunities for access by non-GSO systems, including use of reverse-band operations and clarifications or modifications to the priority scheme established in RR No. 2613.

AMSC's principal concern with respect to feeder link spectrum is that any use of FSS spectrum by non-GSO systems be pursuant to a reasonable power flux density limit that protects uplinks to geostationary satellites if non-GSO systems seek to employ reverse-band operations. The limit of  $-174 \text{ dB(W/m}^2\text{)}$  in any 4 kHz specified in RR Article 29 should be an appropriate starting point for developing such a limit. AMSC also urges the Commission, if it adopts a policy of supporting reverse band operations in FSS bands, that it permit GSO as well as non-GSO systems to use this technique.

Conclusion

Based on the foregoing, American Mobile Satellite Corporation respectfully requests that the Commission act in accordance with the proposals set forth by AMSC.

Respectfully submitted,

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## DECLARATION

I, Thomas M. Sullivan, do hereby declare as follows:

1. I have a Bachelor of Science degree in Electrical Engineering and have taken numerous post-graduate courses in Physics and Electrical Engineering.
2. I am presently employed by Computer Sciences Corporation and was formerly employed by the IIT Research Institute, DoD Electromagnetic Compatibility Analysis Center.
3. I received in 1982 an official commendation from the Department of the Army for the establishment of worldwide frequency accommodations for mobile earth stations.
4. I am qualified to evaluate the technical information in the Reply Comments of American Mobile Satellite Corporation. I am familiar with Part 25 and other relevant parts of the Commission's Rules and Regulations.
5. I have first-hand experience in the coordination of frequency assignments for mobile satellite systems.
6. I have been involved in the preparation and have reviewed the Reply Comments of American Mobile Satellite Corporation. The technical facts contained therein are accurate to the best of my knowledge and belief.

Under penalty of perjury, the foregoing is true and correct.

5 August 1994

Date

Thomas M. Sullivan

Thomas M. Sullivan

**CERTIFICATE OF SERVICE**

I, Cynthia L. Smith, a secretary in the law firm of Fisher Wayland Cooper Leader & Zaragoza L.L.P. do hereby certify that on this 5th day of August 1994, a copy of the foregoing "Reply Comments of American Mobile Satellite Corporation" was sent by U.S. first class mail, postage prepaid to:

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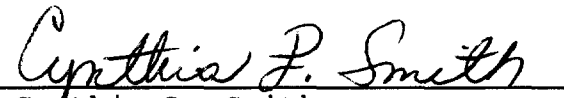
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